

Tri-Mate Scaler, Polisher & Electrosurgery

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# **READ BEFORE YOU START**

The handpiece, ultrasonic transducer (stack), and tip are water cooled devices and must always have adequate water flow to function properly. The amount of water sent to the handpiece must be regulated according to the power level. If the power level is increased, the amount of water must also be increased. Not having enough water flow throughout the scaling handpiece will cause the handpiece to get hot, degrade transducer life and void the warranty. Remove the stack from handpiece until water flows out, then reinstall stack.

When active, ultrasonic tips vibrate at over a million cycles per minute, if it touches soft tissue or skin it will cause burns due the friction of the vibration. The tip is not normally hot but the ultrasonic vibration will burn you if you touch it, this is due to the friction between the skin and the vibrating tip. This is normal for all ultrasonic scalers. Never let the scaling tip touch soft tissue or skin, Engler Engineering Corporation is not responsible for any damage caused by improper use of this device and / or its accessories.

When using a water bottle, it must be kept pumped to at least 30 PSI. The pressure release valve will slightly move out showing the yellow interior when pressure builds up. As water is used the pressure will decrease and the bottle must be pumped to keep adequate pressure.

Never twist or bend your ultrasonic stack. Be careful not to twist or bend the stack when inserting or removing it from the handpiece. Pull the stack straight out to remove it. Always make sure the stack is properly aligned when inserted into the handpiece. There is a white dot in the handpiece and a hole in the stack, they must be aligned during insertion. Bending the stack or inserting it incorrectly into the handpiece may irreparably damage the stack and degrade it's ability to vibrate. Improper insertion of the stack may also damage the handpiece as well as cause it to get hot. Damage caused by bending or forcing the stack into the handpiece is not covered by the warranty. A stack removal tool is available from Engler Engineering Corporation, it is part number 47903.

Do not alter the scaling tip. The tip is shaped to deliver the optimum vibrating power level and keep its optimum frequency. Deforming the tip in any way will cause the handpiece to get hot, degrade vibration power and void the warranty.

Dropping the handpiece with the stack and tip may alter or damage your tip causing the handpiece to get hot, degrade vibration power and void your warranty.

Remove the tip from the stack and clean/disinfect after every use. Stack, tips, water filter, prophy angle, straight handpiece and accessories are normal wear and tear items. In order to achieve optimum performance they should be replaced regularly.

The water regulator has multiple turns. Turn the water regulator knob counterclockwise to open and clockwise to close. The amount of turns required is dependent on the supplied water pressure.

The ultrasonic stack normally last six months to a year. To achieve optimum performance replace every six months to a year or as needed. Do not leave the ultrasonic stack inside the ultrasonic handpiece for long periods of time. The O rings may dry out and make it difficult to remove the stack.

Lubricate the stack O rings with an appropriate lubricant for your practice, for example mineral oil or petroleum jelly is appropriate for most practices. A stack removal tool and a maintenance kit are available from Engler Engineering Corporation.

Do not coil tightly, kink or pull the hoses. Kinking the hoses will restrict or cutoff water flow to the unit.

Turn off the unit when not in use. The power switch is on the left side of the unit.

As a safety precaution, all water is purged from the water lines prior to shipping. When installing the unit, no water will come out of the handpiece until the water lines are filled. Remove the stack, turn the water regulator counterclockwise 3 to 4 turns and and turn the power down to minimum, press on the footswitch until water flows, then reduce water to proper water level and reinstall the stack, nosecone and the tip. Warning the handpiece is water cooled and it will get hot when running with no water.

### **COMPANY PROFILE**

Engler Engineering Corporation has been in business since 1964 and occupies an 8000 square foot facility in Hialeah, Florida (USA). We manufacture high speed dental air units, ultrasonic dental scalers, polishers and combination units including electro surgery equipment and ultrasonic instruments for the veterinary market as well as a microprocessor controlled anesthesia delivery system and a respiratory monitor for veterinary use only.

We also manufacture dental equipment for the human market. Please visit our website www.englerusa.com for more detailed information or call us at the numbers shown below.

Engler Engineering Corp. acquired the exclusive manufacturing and marketing rights of Dynax products, including stretchers and gurneys, animal restraint devices, comfort cots, and other products. We also acquired the Alpha-Sonic, Ora-Sonic, and Pro-Sonic line of piezo scalers.

Engler Engineering Corporation's brand name products proudly include: Sonus II ultrasonic dental scaler, Poli-x variable speed polisher, Scale-Aire high speed veterinary dental air unit with ultrasonic scaler / low speed / high speed / air / water syringe, Excelsior high speed veterinary dental air unit with vacuum / electrosurgery / ultrasonic scaler / low speed / high speed / air / water syringe, Tri-Mate scaler / polisher / electro surge (for veterinary use only), and the A.D.S. 2000 Anesthesia Delivery System / Ventilator (for veterinary use only).

We manufacture all of the inserts and tips used in the Engler products as well as many others on the market today in the 18K, 25K, and 30K frequency range.

Our repair department has the technical knowledge to repair and maintain a number of dental devices manufactured by other companies including Shorline.

Engler Engineering Corporation's foreign sales are handled through a large and growing network of dental and veterinary distributors. At the present time we are represented throughout the Middle East, Europe, Central and South America, Canada, Asia, New Zealand, Australia, and most other countries.

If you have any questions or comments, please contact:

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# INTRODUCTION

Thank you for purchasing an Engler Tri-Mate Electrosurge Scaler Polisher combination.

The design of the Engler Engineering Corporation, Tri-Mate scaler circuitry combines Integrated Phase Lock Loop technology along with our time tested delayed cavitation circuitry. This combination produces a powerful and potent tool against periodontal disease. A reinforced solid aluminum chassis surrounds the internal circuit board, providing a very durable and reliable unit.

The dental scaler utilizes an ultrasonic principle of operation. The internal circuitry converts ordinary line voltage to an operating frequency of approximately 18,000 Hz. This frequency is then amplified and delivered to the scaling tip. As a result, the tip vibrates at this ultrasonic frequency with an amplitude of 0.001 to 0.004 in. (250 to 1000 um).

In designing our unique Engler tips, water flows internally through the tip as it vibrates. As the bubbles in the lavage are bacteriocidal, the energy released collapses and destroys the bacterial cell walls. The water flowing internally through the tip, effectively cools the area and assists in removing any debris from the operative site

#### **IMPORTANT**:

We recommend that ultrasonic scalers and electrosurgery units should not be used by or in close proximity to anyone who has any electronic implant device such as a pacemaker or defibrillator.

#### PLEASE READ VERY CAREFULLY

All devices manufactured and / or sold by Engler Engineering Corporation are built and tested to approved standards. Any modification to the device, cables or hoses, initiated by the purchaser or it's agents nullifies all warranty statements. Engler Engineering Corporation will not be held liable for any loss, damage, injury or death due to non-authorized service and / or improper installation and / or improper use of the device.

It is imperative that you inspect the contents and if you find any pieces missing or damaged, you must notify Engler Engineering Corp. immediately. All claims submitted after fifteen days of receipt will not be valid.

This manual is not intended to teach dentistry. The information contained herein is intended only as a guide. Individuals not properly trained in dentistry should not use this equipment. It is intended for professional use only.



# QUICK START GUIDE

#### ELECTROSURGERY:

- 1. Make sure indifferent ground pad is connected. The indifferent ground plug must be connected to the indifferent ground Jack.
- 2. Indifferent ground plug must be making proper contact with the patient.
- 3. Turn tool selector switch to electrosurgery.
- 4. Adjust electrosurge power level to the appropriate power level.
- 5. Install electrosurge tip. Push electrosurge tip into the handpiece.
- 6. Press the footswitch to operate, cycle 30 seconds ON and 30 seconds OFF. Cut by gently pressing into the tissue and pulling back.
- 7. Clean and disinfect the tip, handpiece and unit after each patient.

#### SCALER:

- 1. Make sure water is connected and pressure exceeds 30 PSI. When using the water tank, pump the bottle approximately 20 to 40 times depending on the amount of liquid used.
- 8. Turn tool selector switch to scaler.
- 9. Adjust scaler power level to lowest power level.
- 10. Press footswitch until water comes out of the handpiece. Water level knob may need to be adjusted (counterclockwise to open). The water level knob has approximately three full turns.
- 11. Install stack, nosecone and tip on scaling handpiece. Stack must be properly aligned and tip must be properly tightened.
- 12. Press footswitch, adjust water level and adjust power as needed. Water cools the handpiece and flushes blood and debris. Always use plenty of water.
- 13. Clean and disinfect the tip, handpiece and unit after each patient.

#### POLISHER:

- 1. Install micromotor cable plug into the polisher connector at the front of the unit.
- 2. Install straight handpiece onto the motor (snap on).
- 3. To unlock straight handpiece, locate the swivel collar. Grasp the base of the straight handpiece and rotate / twist the center collar until you hear a click.
- 4. Insert prophy angle into the straight handpiece and lock handpiece by reversing the above.
- 5. Grasp the base of the straight handpiece and rotate / twist the center collar till it clicks.
- 6. Install rubber cup.
- 7. Clean prophy angle as needed but at least once a day. Follow the prophy angle cleaning and maintenance instructions.
- 8. Lubricate straight handpiece at the end of the day. Follow the straight handpiece maintenance instructions.
- 9. Clean (but do not lubricate) motor and power cord.
- 14. Clean and disinfect the unit after each patient or as needed.

# TRI-MATE ELECTROSURGERY

Electrosurgery electronics uses solid-state technology. The unit is ready to operate as soon as the power is applied. The unit accepts electrical power from a standard outlet and converts low frequency 60 Hz cycle to a high frequency radio wave. This rapid reversal of current means ion positions across cellular membranes do not change. As a result, neuromuscular membranes do not depolarize and there is no danger of cardiac defibrillation at these high frequencies. Neuromuscular stimulation occurs at alternating current frequencies of less than 100,000 hertz.

The frequency used in this device is above the range of neuromuscular stimulation and there is no danger of electrical shock to the patient or operator. However, this high frequency waveform produces heat rapidly and is capable of producing burns to tissue.

These high frequency radio waves are transmitted from the insulated handpiece into the patient's tissue by the metallic surgical tip electrode. This device is a capacitive coupled device.

The current from the surgical monopolar electrode is transmitted to the target tissue and then dissipated through the indifferent plate, thus forming a complete circuit. The use of the isolated capacitive coupled circuit is an attempt to reduce the incidence of an alternate burn site inflicted to the patient by incorrect placement of a return pad. Still care must be taken because a chance of alternate site burns exists, related to current taking the pathway of least resistance to ground. When operating, always use plastic suction tips, mouth mirror, etc.

#### INDIFFERENT GROUND

The indifferent ground plug is located in the back of the unit. The indifferent ground pad must always be connected to the indifferent ground plug and the pad must be making good contact with the patient for the electrosurgery to work properly. A complete circuit is necessary for the flow of current. That is, electrons must leave an electrode and return to mother earth to complete the circuit. In a monopolar circuit, current flows between two electrodes held widely apart. These two electrodes are the active electrode, which is small, thereby providing a high power and current density, and the return or indifferent electrode, which is large, thereby providing a low current density. It is important to remember that the indifferent electrode is just as capable of producing injury as the active electrode. The key element to avoiding injury at the indifferent electrode is to have a large surface area of contact. In this manner, the current is dispersed over a large area, thereby reducing the current density. Consequently, the indifferent electrode must be placed over an area that will allow uniform contact with the body. If contact is only partial, current density at the indifferent electrode will be greater and injury can result. The return or indifferent electrode is often referred to as the grounding pad. This however is incorrect. The indifferent electrode carries current back to the generator, not to ground.

The path of least resistance is always taken to the indifferent electrode in a monopolar circuit. As a result, consideration should be given to what the operative procedure will be when the indifferent electrode is applied to the patient.

The indifferent electrode should always be as close to the operative site as possible to minimize the volume the current will need to travel. For example, the indifferent electrode is better applied to the right flank during gallbladder surgery than to a thigh. The reason is that the distance between the operative site and the indifferent electrode is diminished when applied in the right flank, thereby providing a closer and more direct pathway for the circuit to be completed. This should reduce the likelihood of injury at a site other than that intended because current flow through the body is less. REFERENCE:

Thermal Energy in Minimally Invasive Surgery - Science and Safety Joseph F. Amaral, MD

#### Principles of Electrosurgery:

The Tri-Mate uses a constant waveform, which produces heat very rapidly to enable the operator to vaporize or cut tissue. As tissue conducts heat, always allow 10 to 15 seconds for the tissue to cool before operating on the same area. The only variable that determines whether the Tri-Mate vaporizes tissue or produces a coagulum is the rate at which heat is produced. High heat that is produced rapidly will cause vaporization while low heat produced more slowly creates a coagulum. In order to limit migration current into adjacent issue the surgical intervention must be performed in a dry field. Do not use adjacent to metallic restorations due to uncontrollable and unpredictable migration along this alternate path or near bone due to current spread and the danger of osseous necrosis.

#### Tissue types:

Different tissue types have different electrical characteristics. The electrode drags when moving through high impedance (fibrous) tissue, requiring more power. When low impedance (muscle) tissue is encountered a lower power setting should be used.

PLEASE NOTE: Excessive tissue damage can occur if the power setting is in excess of what is required to accomplish the task.

#### A word about duty cycle:

Duty cycle Is a term that refers to the length of time an electro surgery unit should be allowed to run. Generally speaking an electro surgery device uses high energy, which generates a lot of heat at the operative site AND inside the electro surgery device. It is generally recommended that the unit be used for no more than 30 seconds on and 30 seconds off. This allows sufficient time for the unit **and** the operative site to cool.

- 1. The indifferent ground plug is located in the back of the unit, the indifferent ground pad must always be connected to the indifferent ground plug and the pad must be making good contact with the patient for the electrosurgery to work properly.
- 2. Never use the Electrosurgery side of the Unit if you are fitted with any electrical implant device. All persons in the immediate are of the surgery should be advised of the potential hazards if they have any implant, which may be affected.
- 3. Never use the Electro surgery unit on a patient fitted with an electrical device, or in the immediate area of any metallic implant.
- 4. When operating the unit, always use non-conductive (plastic) implements on the patient. This includes suction cups, mirrors, probes, etc.
- 5. For the electrode to work efficiently during surgery, it must be kept clean. The best way to accomplish cleaning is with a damp cloth thick enough so the active electrode will not burn your fingers. Tissue comes off easier when the electrode is activated.
- 6. Suggested power setting for a cut is 5 to 6 on the dial. The cut should be without drag on the tissue. Electrodes held in place for over 2 seconds will cause tissue to burn. If you need to work on one area of tissue, always remember to allow sufficient time for the heated tissue to cool, usually 10 seconds.
- 7. The electrode should be about 1 mm from the tissue surface and very slowly lifted off. The tissue should turn white. If the tissue turns brown, you are burning the tissue, the setting is too high or you are moving too slowly. If you bury the electrode into the tissue, nothing will happen. As coagulating tissue correctly is quite difficult, it is suggested that you practice on a piece of steak.
- 8. Because the electrodes are delicate, they are not covered under warranty except for manufacturer defects. When they are used correctly, with care, they will last a considerable length of time.
- 9. Sparking can occur at the point of the electrode. DO NOT use the Unit in the presence of flammable gasses or metallic items.

# **INSTALLATION INSTRUCTIONS**

Before installing or operating your new Tri-Mate, carefully read and follow all of the instructions. **IMPORTANT:** This device must be connected to a clean, filtered, water supply, capable of delivering 30 to 60 psi (2.0 to 4.2 kg/cm2) of water input pressure. This unit comes with an In-Line water filter (P/N: A52030). When kept clean and free of foreign matter, it will assist in proper water flow to the unit. If the water pressure in your office is above 60 psi, we recommend you install a water pressure regulator on the supply line to your scaler.

#### CONNECTING WATER SUPPLY:

We strongly recommend that a manual shut off valve be placed prior to the Female Quick Disconnect, so that the water can be completely shut-off, and line pressure relieved, when the unit is not in use. This device comes equipped with an 8 foot (244 cm) water line, a male quick disconnect fitting, a water filter.

We suggest that you use one of the four methods as shown on the next two pages.



44301 Male quick disconnect

\*\* Please note, male quick disconnect is supplied as a standard item with all Engler scalers.

#### **PLEASE REMEMBER -**

It is recommended that you disconnect the device from the water supply when it is not in operation. Failure to disconnect the device from the water supply when it is not in operation will void your warranty and Engler Engineering Corporation will assume no liability for damages due to not following recommendations in the Engler manuals.  Female Quick Disconnect (P/N: 44300) - This is the female mating connector to the male quick disconnect supplied with the Tri-Mate. Use this to create a custom water installation utilizing ¼ "I.D. water tubing.



44300 Female quick disconnect

A44303 Saddle valve assembly with female guick disconnect & tubing

 Saddle Valve Assembly (P/N: A44303) - This kit contains all parts to quickly and easily connect your unit to an existing existing 3/8" to 1-3/8" copper tubing cold water supply line.

3. Faucet Adapter Assembly (P/N: A22303) - This screws onto an existing faucet and has a female quick disconnect included.



A22303 Faucet attachment with female quick disconnect & tubing

4. Portable Water Tank (P/N: PT-1) - This is a selfcontained water source, which is ideally suited for portable operation. We suggest using distilled water and fill the tank to the water fill line (approximately 2/3). Tighten the cap, insert the male quick disconnect on the water line into the female quick disconnect on top of the tank, pressurize the tank by pumping the handle until the pressure relief valve's yellow indicator begins to show. Lock the handle in place.

IMPORTANT: If you do not feel comfortable doing the water installation yourself, we recommend the services of a professional plumber. Engler Engineering Corporation will not be held liable for any damage including, but not limited to leakage caused by improper installation of our products.



#### CONNECTING WATER SUPPLY (cont.)

PLEASE NOTE: Minerals and foreign particles in the water may cause a buildup or blockage of internal hoses and parts.

The water filter supplied with this device must be opened and inspected quarterly and we suggest that the filter disc and O ring be changed out at least once a year. See WATER FILTER CLEANING INSTRUCTIONS.

#### **CONNECTING POWER:**

Plug the power cord into a grounded power outlet. DO NOT remove or bypass the ground pin from the power cord of this device. Doing so will void the warranty.



## SCALER OPERATING INSTRUCTIONS

#### Initial procedures at the start of every day:

- 1. Make sure the water is turned on and flowing to the Device. Rotate the Selector Switch to the "SCALER" position, the red LED indicator should light up, showing that you have power to the unit.
- 2. Adjust the power control knob to the **minimum** power setting fully counter-clockwise.

NOTE : The O rings on the stack should be lubricated every week or two with a small amount of petroleum jelly to keep the stack from sticking in the handpiece.

- 3. With no transducer (stack) in the handpiece (no tip installed), set the water control to its maximum setting by rotating it counterclockwise, (knob will rotate up to 3 and a half turns for maximum water) hold the handpiece over a sink and depress the footswitch until water comes out in a stream. This should take several seconds. This step is done to insure proper operation of the delay cavitation feature by removing air that may be trapped in the water lines.
- 4. Insert the transducer (stack), install nosecone and then install a sterile tip into the nosecone, and rotate the nosecone in a clockwise direction. Then firmly tighten by hand.

**IMPORTANT:** It is important that you DO NOT over-tighten the tips, as this will damage the Stack and / or tip and void your warranty.

5. Always keep the power control at the lowest setting and the water control to a level where you have a fine mist at the tip. Higher power settings will result in hotter water.

NOTE: Tips sent from our facility are not pre-sterilized.

**IMPORTANT:** If you find that tightening the nosecone by hand is not successful, you may lightly tighten the nosecone with the tip wrench. Since the tip wrench is designed to remove the tips, it is important that you DO NOT over-tighten the tips with the tip wrench, as this will damage the Stack and / or the tip and void your warranty.

**IMPORTANT:** Keep in mind that higher power levels tend to heat the out-flowing water. Temperature control can be achieved by balancing the power with water flow volume. Thus, high power settings require high water flow rates and conversely low power requires low water flow rates.

6. The scaler is now ready for use.

**IMPORTANT**: Operating this device with hot water may cause damage to gums, lips and tongue. If the handpiece begins to get warm, stop and check water temperature. If it is hot, make sure that the power is at the lowest setting and the water is set at a high enough setting to provide a lukewarm mist.

Engler Engineering Corporation will not be liable for damage due to improper use of this device. Do not use this device if the water temperature is too hot.

Call Engler Engineering Corporation technical support for further help.

### ULTRASONIC SCALING PROCEDURES

- 1. Before placing tip into patient's mouth, activate the scaler over a sink by depressing the footswitch. A fine mist, with the temperature between cool to lukewarm to the touch is recommended. This should be accomplished with minimal power and proper water flow.
- 2. It is recommended that when a tip is placed into a patient's mouth, the lips, cheek and tongue be retracted to prevent accidental contact.
- 3. Place the tip into the patient's mouth and depress the footswitch in order to activate the scaler.
- 4. Bring the tip lightly up to the tooth and gently move it over the surface of the tooth with an erasing motion.
- 5. A saliva ejector or HVE is recommended.

# IMPORTANT: Do not leave the vibrating tip in one place as it can cause serious damage to the tooth or surrounding tissues. Engler Engineering Corporation will not be liable for damage due to improper use of this device.

**Note:** We have designed the this device with a feature called Delayed Cavitation. This function purges the tip of water after releasing the footswitch to prevent bacteria from entering the tip.

**IMPORTANT:** Pressure on the tip is not necessary to remove calculus or tartar. Enamel on the teeth may be damaged or removed when using excessive pressure. It can also be damaged if the scaling tip is left to rest in one spot for even a few seconds. Using the tip as a pry to remove calculus or tartar may change the shape of the tip, which in-turn, changes the frequency. The normal power setting for most procedures should be LOW range. Since every operator has a different technique and some patient's are more sensitive than others, the power may be adjusted to satisfy specific requirements.

# CAUTION: Contact with Soft Tissue May Cause Burns. Engler Engineering Corporation will not be liable for damage due to improper use of this device.

The use of a face mask is recommended when operating the scaler, to avoid inhalation of bacterially contaminated aerosol (water mist) by the operator.

### SCALER MAINTENANCE

#### FINAL PROCEDURES AT THE END OF EACH DAY:

- 1. Make sure the unit is turned off.
- 2. Detach the tip and nose cone and sterilize.
- 3. Disconnect the unit from its water source or turn off the water supply.
- 4. Clean and disinfect all surfaces.

#### Instrument Tips:

**IMPORTANT:** The scaling tips should be thoroughly cleaned and free of blood, tissue, or any other debris before sterilization.

The scaling tips, nosecone and stack may be sterilized by autoclave or chemiclave, always following the manufacturer's instructions and recommendations. Do not autoclave over 270 degrees F or more than twenty (20) minutes..

It is recommended that you do not leave tips screwed into the handpiece for several days, as water and sediment may make it difficult to remove, causing possible damage to the stack.

#### Transducer / Stack:

The stack may be sterilized using the same methods as listed above. **Do not sterilize the entire stack, tip** and nosecone assembly as one piece. Separate the tip from the stack before sterilization. To re-install stack into handpiece, follow correct procedures on the next page.

**Note:** To achieve optimum performance of your equipment, we recommend that the stack, tip and nosecone be replaced every 6 months to a year.

#### Chassis:

The chassis of your unit should be cleaned at the end of every operating day with a chemical sterilization solution. This procedure could be done by spraying a fine mist of sterilization solution on the unit, allowing it to remain on the chassis for the length of time recommended by the manufacturer. The surface should be wiped with a clean damp cloth or as suggested by the chemiclave manufacturer. Dry completely.

**IMPORTANT:** In using any chemical sterilization solution please follow the manufacturer's suggested procedures.

#### HANDPIECE, FOOTSWITCH AND POWER CABLES:

After each procedure, or at least once a day, it is suggested that the handpiece and its cable be thoroughly cleaned and sterilized. The recommended procedure is as follows:

- 1. Remove tip, and nosecone sterilize these items as listed above.
- 2. Clean the outer surface of the handpiece and its cable with an antiseptic soap, rinse off with water and sterilize with a chemical sterilization solution.
  - Note: If any chemicals are allowed to get into the handpiece you must flush it out with clean water.
- 3. Place cleaned tip and nosecone into handpiece for next patient.
- 4. The footswitch and power cables should be cleaned periodically by spraying a fine mist of sterilization or cleaning solution on the cables. It should remain on the cables for the length of time recommended by the manufacturer. Wipe the surface with a damp cloth and dry the cables completely.

You have purchased a precision instrument. Please handle gently - It is easily damaged

#### TO REMOVE THE STACK:

- 1. Unscrew the scaling tip by turning the plastic nosecone counterclockwise using the tip wrench.
- 2. Remove tip.
- 3. Pull off plastic nosecone. Pull stack straight up. DO NOT USE PLIERS! If you have difficulty pulling the stack out, screw the tip back in (without the nosecone) and pull the stack straight out with the tip.

IF YOU STILL CANNOT REMOVE IT CALL US AT 800-445-8581.

Do not twist or rotate stack while it is in the handpiece, as it will damage the stack and / or handpiece and void your warranty.

#### TO INSTALL THE STACK:



Carefully remove the new stack from the clear shipping tube.

- 1. Locate the hole (see photo above) on the side of the stack. Align it with the white dot on the top of the handpiece and let the stack slide down into the handpiece.
- 2. Gently push the stack down until it stops. There should be approximately ½ inch showing above the handpiece.

DO NOT force the stack into the handpiece.

- 3. Push plastic nosecone onto scaler handpiece.
- 4. Place Scaling Tip into nosecone and turn nose-cone clockwise.

#### NOTE 1: Tighten securely by hand. DO NOT USE TIP WRENCH.

**NOTE 2:** The O rings on the stack should be lubricated every week or two with a small amount of petroleum jelly (Vaseline) to keep the stack from sticking in the handpiece.

NOTE: Twisting the nosecone or tip with excessive force will damage the stack and void your warranty. FOR FURTHER ASSISTANCE CALL CUSTOMER SERVICE 800-445-8581 OR 305-688-8581





- 1. Plug the micromotor into the front of the control box. This is done by inserting the male connector at the end of the micromotor cable, into the female receptacle on the front panel of the unit and rotating the lock collar clockwise.
- 2. Slide the straight handpiece down over the top of the micromotor.
- 3. Line up the notch of the prophy angle with the aligning pin on the straight handpiece, and then push the shaft of the prophy angle into the chuck of the straight handpiece.
- 4. Rotate the lock ring clockwise, until it clicks and locks the prophy angle in place.
- 5. Place a disposable rubber-polishing cup on the end of the prophy angle by snapping it on. The prophy angle is now secured and ready for operation.
- 6. Rotate the selector knob on the front of unit to either forward or reverse operation.



**NOTE 1:** When using the polisher the green led indicator should be on.

**NOTE 2:** High speed will damage the gears in the prophy angle, splatter the polishing compound and overheat the teeth, possibly burning them. Always start at the lowest setting, then increase speed as necessary.

#### SAFETY INFORMATION:

Never turn the lock ring while the handpiece is in operation.

- 1. Never reverse the direction of the micromotor while it is in operation. Possible damage to the unit may occur.
- 2. Do not drop the micromotor, handpiece or prophy angle on the floor or other hard surface as the shock may cause malfunction.
- 3. Do not lock or run the micromotor / straight handpiece assembly without a prophy angle, cutting disc, contra angle, or test shaft installed. doing so could damage the straight handpiece and / or micromotor.
- 4. Never oil the micromotor.
- 5. When installing the prophy angle or other accessory, make sure that the lock ring is rotated fully in the unlock position, otherwise the accessory can not be installed and the straight handpiece will not operate.
- 6. Do not rotate the selector switch on the front of the control box between forward and reverse rapidly. always allow a second between the two selections.
- 7. As this is a precision instrument, always return it to Engler Engineering Corporation for maintenance and repair.

# POLISHER OPERATION

- 1. Dampen the rubber cup and place a small amount of polishing paste on it.
- 2. Rotate the POWER control to the minimum setting in the Prophy Range.
- 3. Depress the footswitch and the rubber cup will begin to rotate. The speed of rotation may be adjusted to your desired level by readjusting the POWER control.
- 4. To keep the paste from flying off the cup, maintain a low speed and gently bring the cup up to the tooth before depressing the footswitch.

**IMPORTANT:** The prophy angle is only rated to rotational speeds up to 5000 RPM - therefore, in order to prevent premature failure of the angle keep the unit set in the prophy range whenever the prophy angle is attached to the straight handpiece.

- 5. High-speed settings may throw the polishing paste off of the rubber cup. Always start with a low speed and then adjust to a higher speed as required.
- 6. Place the end of the angle into the patients' mouth and gently apply the rubber cup to the surface of the tooth with a circular motion. Do not allow the rubber cup to remain stationary on one area for an extended period of time.

### POLISHER MAINTENANCE: PROPHY ANGLE

The Prophy Angle is a precision engineered dental device. All of the gears and shaft assemblies are made of high-grade stainless steel, which if cleaned and lubricate correctly will provide long, trouble-free service.

Daily Cleaning and Lubrication:

- 1. Remove prophy angle from straight handpiece.
- 2. Discard used rubber cup.
- 3. Follow the cleaning instructions that were supplied with the Prophy angle.
- 4. Place a new rubber cup onto the angle.
- 5. Slide the prophy angle down over the straight handpiece and lock it in place.

**IMPORTANT:** For a long dependable life, the prophy angle should be lubricated daily, if possible after each use. Keep hair away from prophy cup and head cap.

SUGGESTION: To keep hair from being tangled in the angle, we recommend using a gentle adhesive tape such as masking tape around the lips, keeping hair in place away from treatment area.

This device is shipped with

### STRAIGHT HANDPIECE MAINTENANCE



P-MM-E 35,000 RPM Micromotor W/Cord



P-SH-A1:1 Straight handpiece



P-A1-B Prophy Angle (Sealed Bearings)



Snap on rubber cups



Polishing paste

#### LUBRICATION:

The spray nozzle oiling method is optional but highly recommended because it cleans as well as lubricates. The alternate method is to place 1 drop of approved oil in the chuck hole. Do not lubricate the handpiece while it is on the Micromotor.

Lubrication of the straight handpiece is required at least once a week.

Lubrication by spray lubricant:

- 1. Make sure that the straight handpiece is in the unlocked position prior to lubricating.
- 2. Install the E-Type nozzle by pushing it onto the top of the spray can. To lubricate, insert the E-Type nozzle into the bottom of the handpiece. Holding the two together tightly, with can in the upright position, push spray button for 2 to 3 seconds.

NOTE: If spray time is too short oil may not be propelled into all areas of the handpiece.



CLEANING and STERILIZATION OF HANDPIECE.

#### CLEANING:

- 1. Wipe the handpiece clean with an alcohol-soaked soft tissue.
- 2. Never clean the handpiece with boiling water, chemical solutions, ultrasonic cleaner, or with wire brushes.

#### STERILIZATION:

- 1. Autoclaving is recommended for the Engler straight handpiece.
- 2. Clean the handpiece as described above.
- 3. Lubricate the handpiece as described above .
- 4. Place the in an autoclaving pouch and seal it in accordance with the instructions on the pouch.

5. Autoclave the handpiece for no longer than 20 minutes at 121 C (250 F), or 15 min. at 132 C (270 F). Keep the straight handpiece away from water vapor or mist that may settle and cause premature damage to the bearings.

**IMPORTANT:** DO NOT UNDER ANY CIRCUMSTANCE, attempt to repair, disassemble or unscrew the straight handpiece. Doing so may shift the internal springs, causing permanent damage to the unit and will void warranty. If you experience problems during operation, call our repair department.

#### **MICROMOTOR MAINTENANCE**

The Micromotor is capable of rotational speeds up to 35,000 RPM for use in cutting, sectioning and drilling. It contains sealed bearings and does not require any lubrication. The Micromotor has cooling vents at the back of the unit, Do not allow water, oil, or any other substance to enter these vents. Failure to keep debris out of the Micromotor will shorten the life of the unit and cause permanent damage.

#### IMPORTANT:

- 1. NEVER change the direction of the Micromotor while it is in operation. ALWAYS wait until it has come to a full stop.
- 2. NEVER oil, or allow oil to get into the micromotor.



### ELECTROSURGERY TROUBLESHOOTING

THE ELETROSURGERY TIP WILL NOT OPERATE:

- 1. The indifferent ground plug is located in the back of the unit, the indifferent ground pad must always be connected to the indifferent ground plug and the pad must be making good contact with the patient for the electrosurgery to work properly.
- 2. The selector switch in the front of the unit must be set to electrosurgery.
- 3. The unit is not plugged in to a power outlet: verify that the unit is plugged in.
- 4. Power Outlet not active: try another outlet.
- 5. The power cord is not connected to the device.

# SCALER TROUBLESHOOTING

#### "ON" LED INDICATOR DOES NOT LIGHT UP:

- 1. The unit is not plugged in to a power outlet: verify that the unit is plugged in.
- 2. Power Outlet not active: try another outlet.
- 3. The power cord is not connected to the device.
- 4. Contact Engler Engineering Corporation.

#### "ON" LED INDICATOR LIGHTS UP, NO WATER FLOW:

- 1. Verify that the selector switch is in scaling mode.
- 2. Verify water line is connected and water is flowing to unit.
- 3. Verify that the waterline is correctly connected to the coupling insert at the back of the unit.
- 4. Check if water line is kinked or twisted.
- 5. Check Water Filter and disk: clean disk with plain water and a toothbrush. If clogged, replace O ring and disc.
- 6. If using Portable Water Tank: Verify you have the correct water level and sufficient pressure.
- 7. Water blockage in tip: replace the tip. (Clean with # 3 (0.012") piano wire)
- 8. Contact Engler Engineering Corporation.

"ON" LED INDICATOR LIGHTS UP, LITTLE OR NO VIBRATION / CAVITATION ON TIP:

- 1. Tip loose: tighten the tip.
- 2. Tip damaged: replace the tip.
- 3. Old or damaged stack: replace the stack.
- 4. Contact Engler Engineering Corporation.

#### HOT WATER COMING OUT OF SCALING HANDPIECE:

The Stack requires a constant cool water flow in order to maintain tip water temperature below 100 degrees F. You may correct the problem by:

- 1. Adjusting water flow knob higher (counter clockwise).
- 2. Tip clogged. Replace tip.
- 3. Check and / or replace O ring and disc in the inline filter.
- 4. Water restriction in unit: contact Engler Engineering Corporation repair department.
- 5. If using a Portable Water Bottle, check water level then pump to pressurize the bottle.

#### INTERMITTENT OPERATION:

I. Tip vibrates / cavitates and then stops:

- 1. Tip loose: tighten tip.
- 2. Foot switch damaged: Contact Engler Engineering Corporation.
- 3. Handpiece / cable damaged: Contact Engler Engineering Corporation.
- II Tip action ceases abruptly during operating procedure.
  - 1. Tip not tightened: tighten tip.
  - 2. Transducer broken: replace.
  - 3. Handpiece / cable damaged: Contact Engler Engineering Corporation.

# POLISHER TROUBLESHOOTING

#### NO POWER:

"ON" LED indicator does not light up:

- 1. Verify that unit is switched ON, the ON / OFF switch is located on the right hand side.
- 2. The unit is not plugged in to a power outlet: verify that the unit is plugged in.
- 3. Power Outlet not active: try another outlet.
- 4. Contact Engler Engineering Corporation.

"ON" LED indicator lights up polisher not functioning:

- 1. Switch unit to Polisher mode.
- 2. Micromotor not plugged in: plug micromotor in.
- 3. Short in Micromotor or its cord: Contact Engler Engineering Corporation for instructions.

HOT STRAIGHT HANDPIECE:

- 1. Straight handpiece not lubricated properly: Lubricate as shown on page 17.
- 2. Bearings in straight handpiece are becoming worn, causing drag. Contact Engler Engineering Corporation.

HOT MICROMOTOR:

- 1. Straight handpiece causing drag, lubricate straight handpiece correctly or replace straight handpiece. Never oil micromotor.
- 2. Worn brushes in micromotor, Contact Engler Engineering Corporation.
- 3. Oil inside micromotor, return to Engler Engineering Corporation.

#### INTERMITTENT OPERATION:

Unit polishes and then stops:

- 1. Damaged micromotor cord: contact Engler Engineering Corporation.
- 2. Damaged footswitch: contact Engler Engineering Corporation.

MISCELLANEOUS:

- 1. Micromotor speed not adjustable (runs at one speed): Return the complete Tri-Mate with micromotor to Engler Engineering Corporation.
- 2. If the prophy cup unscrews, ("flies off") the prophy angle: Micromotor is rotating in the wrong direction, change direction by rotating the selector on the front of the unit to the opposite direction.

STRAIGHT HANDPIECE ROTATES ON THE MICROMOTOR:

- 1. Straight handpiece not properly locked.
- 2. Prophy angle gears worn.
- 3. Hair may be enmeshed in the gears of the prophy angle, clean prophy angle according to PROPHY ANGLE CLEANING AND MAINTENANCE INSTRUCTIONS (next page).
- 4. Straight handpiece or prophy angle not properly lubricated.

# PROPHY ANGLE CLEANING AND MAINTENANCE INSTRUCTIONS

The prophy angle is a precision engineered dental device. all gear and shaft assemblies are made of high grade stainless steel which must be kept free of debris. If cleaned and lubricated correctly will provide long, trouble-free service. The manufacturer recommends replacing prophy angles at least every 3 to 4 months depending on use. Prophy angles may vary. Use the following instructions accordingly.



### DAILY CLEANING AND LUBRICATION:

- 2.) Discard used rubber cup. CAP GEARS WRENCH (OIL HERE) BODY
  - 3.) Use the wrench to remove the cap from the head.
  - 4.) Unscrew the head (top portion) from the body (bottom portion).
  - 5.) Place the cap, head and body into a bowl of hot soapy water.
  - 6.) Wash thoroughly with a toothbrush.
  - 7.) Rinse well with clear running water and shake off. DO NOT attempt to dry these parts with paper or cotton towels, Q-tips or gauze. Any particles left on the gears will keep them from turning properly. Use only alcohol to speed the drying process and/ or a blow drier to thoroughly dry the Angle.
  - 8.) Lubricate by placing one drop of oil on each gear (see diagram). Oil is available from Engler it is part number P-01.
  - 9.) Being careful not to cross-thread, reassemble the Prophy Angle and wipe off all excess oil. Place a new rubber cup on the onto the cap and confirm that the gears are meshing properly by rotating the cap - it should turn easily. If not, remove the cap and try again.
  - 10.) Slide the Prophy Angle onto the Straight handpiece and lock it.

# WATER FILTER CLEANING INSTRUCTIONS

#### SHOULD BE PERFORMED AT LEAST QUARTERLY

- 1. Turn off water supply to unit or disconnect the male from the female water connector
- 2. Unscrew filter by firmly holding Point "A" in your left hand and Point "B" in your right hand. (Refer to Figure) Next, unscrew by simultaneously rotating your left hand away from you and rotating your right hand toward you. Continue this process until the filter unscrews into two separate pieces.
- 3. The filter body consists of two sides, one with an outer male thread and another with an inner female thread.
- 4. Remove the O RING.
- 5. Next, remove the filter disc by turning the female side over and tapping it gently into the palm of your hand.
- 6. Replace with new disc and O ring part # A52034.
- 7. Reassemble the filter in the reverse order as you disassembled it.
- 8. Turn on the main water supply and check for leaks.



### SADDLE VALVE ASSEMBLY

### **Installation Instructions:**



1. To connect the saddle valve to an existing water source, attach the saddle valve to your existing 3/8" to 1-3/8" copper tubing. Tighten the securing screws evenly.

DO NOT OVERTIGHTEN, THIS MAY CAUSE THE COPPER TUBING TO CRIMP AND REDUCE FLOW.



2. To mount the female quick disconnect, there are two options.

Option "A" (Unmounted Assy.)

Take the free end of the ¼" water tubing that comes from the saddle valve and connect it to the female quick disconnect. This is done by placing the hose coupling nut over the water tubing and placing the hose into the back of the female quick disconnect, then tightening the coupling nut. A44303 Saddle valve assembly w/female connector & tubing

Option "B" (Mounted Assy.)

If you wish, the female quick disconnect may be mounted directly through the sink top or vanity counter. If you choose this way, you must first drill a 1/2" diameter hole through the surface in the space desired. (see next page) Then mount the female quick disconnect and tighten the mounting nut to securely hold it in place. Then proceed to place the hose coupling nut over the 1/4" water tubing. Place this tubing into the back of the female quick disconnect and tighten the hose coupling nut securely.

The copper tube is ready to be pierced.

Confirm that the saddle valve assembly is tightened snuggly to the copper tube and the female quick disconnect is properly connected to the water line.

Turn the "T" handle of the saddle valve in a CLOCKWISE direction until it will go no further. Next, turn the "T" handle in a COUNTERCLOCKWISE direction until resistance is felt. Water will now flow to your dental unit. Check for leaks.

You may now connect the water line to the dental unit.

NOTE: The "T" handle on the saddle valve does not shut water to the dental unit. It is only used to pierce the copper tube. It is very important that you mount the saddle valve after a shut off valve.

Engler Engineering Corporation will not be held liable for any damage including, but not limited to leakage caused by improper installation of our products. It is suggested that a professional plumber make any necessary installations or connections.

### WATER TANK INSTRUCTIONS



PT-1 Water Tank

#### DIRECTIONS:

- 1. Release Air Pressure by PULLING and TURNING pressure relief valve, located on the side of the bottle.
- 2. Remove pump and cap assembly.
- 3. Fill tank with distilled water or medicated solution up to the "FILL LINE" mark. Do NOT fill beyond this line.
- 4. Replace pump and cap assembly and tighten securely.
- 5. Pressurize tank by pumping it approximately 20-40 times (depending on the amount of liquid used). If a hissing sound is detected, tank is over-pressurized. Stop pumping. Leave tank on a level surface until hissing stops. Insert the male quick disconnect on the end of the waterline from scaler into female quick disconnect provided on tank.

# WATER TANK CARE & MAINTENANCE

- 1. Release air pressure by pulling and turning knob of pressure relief valve. Pull out fully and allow air to escape.
- 2. Loosen cap slowly. Remove pump & cap assembly. Pour out any remaining liquid & rinse all parts thoroughly with clean water.
- 3. Always store tank empty and with tank cap loose.

#### TROUBLESHOOTING:

PROBLEM: TANK FAILS TO PRESSURIZE.

- 1. Be sure cap is tight.
- 2. Check to see if pressure relief valve is in safety position.
- 3. Remove the pump from the tank. Turn pump handle counterclockwise and lift handle to unlock. On top of the pump cap there is an opening that says "oil here". Place 3-5 drops of mineral oil into the opening. Pump several times to work the oil into the walls of the pump until it moves freely. Repeat if necessary. Screw the pump back into the tank and resume normal operations. This process should be repeated often as necessary and depending on usage, or when pump starts to work harder.
- 4. Black particles found in water bottle indicates that the pump assembly is deteriorating. Order new pump assembly from Engler Engineering.

Pump assembly has been pre-lubricated.

#### WARNING:

READ AND FOLLOW ALL INSTRUCTIONS.

ALWAYS INSPECT your pump before each use.

ALWAYS RELEASE AIR pressure before removing pump or servicing tank, by pulling pressure relief valve knob out fully.

DO NOT use mechanical devices to pressurize the tank .They can create excessive and dangerous pressure which could cause the tank to explode.

DO NOT STAND over pressurized tank while using it or pumping it

DO NOT USE solutions warmer than 105F.

D0 NOT damage or alter the functions of the pressure relief valve or plug the pressure relief valve hole, as this could cause the tank to explode

DO NOT pressurize the tank until ready for use.

DO NOT lift or carry the tank by waterline, extension rod or pump handle unless it is securely locked in place.

### CARE AND MAINTENANCE OF YOUR PORTABLE WATER TANK

TO KEEP SLIME FROM FORMING INSIDE THE TANK AND EVENTUALLY GETTING INTO THE DENTAL UNIT CAUSING IRREVERSIBLE DAMAGE:

- 1. Every two weeks dispose of water in tank. Pour ½ gallon of hot water and 1 ounce bleach into tank and swirl the liquid thoroughly inside the tank.
- 2. Dispose of bleach mixture and rinse tank with clean water thoroughly and completely.
- 3. Clean the outside of the pump / tank according to your facilities normal cleaning procedures.
- 4. The pump assembly has been pre-lubricated. DO NOT TAKE THIS ASSEMBLY APART.

# **OPTIONAL TRI-MATE ACCESSORIES**





P-MF Maintenance free prophy angle

P-106 screw on rubber cups 144/pkt

CARE FOR YOUR MAINTENANCE-FREE ANGLE STERILIZATION PROCEDURES:

AFTER EACH PROPHY:

- 1. Discard used rubber cup.
- 2. Rinse abrasive paste from head area with water.
- 3. Thoroughly clean the outside of angle with disinfectant.
- 4. Autoclave angle not more than 275 °F (135 °C) over 20 minutes.
- 5. After sterilization cycle is complete, install a new disposable rubber cup and attach angle to handpiece. You are now ready for your next prophy.

CAUTIONS AND WARNINGS:

- 1. Do not attempt to disassemble.
- 2. DO NOT SUBMERGE IN LIQUIDS, INCLUDING ULTRASONIC SOLUTIONS.
- 3. Do not heat over 275 °F (135 °C).
- 4. Use only Engler Care Free Prophy Rubber Cups. Other brands will not properly seal the angle, causing premature wear and voiding the warranty.
- 5. Replace as necessary.

YOUR CARE-FREE ANGLE IS WARRANTED AGAINST DEFECTS IN MATERIAL AND WORKMANSHIP FOR 6 MONTHS. A COPY OF OUR INVOICE OR PICKING TICKET WILL BE REQUIRED AS PROOF OF PURCHASE.

#### WARRANTY IS VOID IF:

- 1. Engler Care-Free rubber cups are not used exclusively.
- 2. Sterilization procedure is not followed properly.
- 3. The angle has been submerged in any liquid.
- 4. The angle has been damaged or abused.
- 5. Damaged due to use at high speed.



P112 Polishing paste (8 oz. jar)





P-105 Snap on rubber cups 144/pkt P-110 polishing paste (200 cups)



Optional Oiling Accessory Spray lubricant with E-type nozzle for all Engler polisher straight handpieces NET WT. 8.80Z (249.48 GRAMS)



If you have any questions or concerns, please contact us. ENGLER ENGINEERING CORP 800-445-8581

> To contact us by INTERNET please use: info@englerusa.com

To help troubleshoot problems, download manuals and see our products, Visit us at: <u>www.engler411.com</u>

# **TECHNICAL DATA**

SCALER:		
	Input power:	120VAC @ 1.2A or 240 VAC@ 0.6 A (set when purchased)
	Input Frequency:	60 or 50Hz.
	Transducer Style: Operating frequency:	Magnetostrictive 17,800 -18,300 Hz
	Ultrasonic Generator Data:	Auto-Tuned Variable Amplitude Power Control
WATER:	Input Pressure:	30 PSI (min.) 60 PSI (max)
POLISHER:	Power Control: Output Voltage: Output Current:	Variable Voltage Style 3 - 30 VDC 2.3 Amps (max)
MICROMOTOR:	Velocity Range: Style: Brush Design:	500 - 35,000 RPM Sealed Bearing "E" type Fully Replaceable
STRAIGHT HANDPIE	CE: Maximum Drive Velocity: Style:	30,000 RPM Sealed Bearing "E" type
PROPHY ANGLE:	Recommended Drive Velocity: Type:	3,000 - 5,000 RPM Sealed Bearing/Open Bushing
ELECTROSURGER	Y <b>:</b> Type: Frequency: Voltage:	Monopolar operation only 0.8-1.2 MHz. Approximate 60 – 1000 VAC

### DIMENSIONS

NET WEIGHT:		10 Lbs. (4.5 Kg.)
CHASSIS DIMMESION:	Length: Width:	12.5 in. (32 cm) 8.25 in. (21 cm)
	Height:	3.10 in. ( 8 cm)
CABLE LENGTH:		
	Handpiece:	96 in. (244 cm)
	Foot switch:	96 in. (244 cm)
	Power Cord:	72 in. (183 cm)
	Water Line:	96 in. (244 cm)
WEIGHT:		
	Net:	10 Lbs. (4.5 Kg.)
	Shipping:	12 Lbs. (5.5 Kg.)

### WARRANTY INFORMATION

It is imperative that when calling Engler Engineering regarding the operation of your unit, that you have the serial number available for quick reference.

The Tri-Mate , scaler polisher combination, with attachments, is warranted to be free from material and manufacturing defects to the original consumer / purchaser for a period as specified below.

Warranty for international sales is one year on all equipment. Warranty on accessories as described below. Engler Engineering Corp. Warrants each new unit or accessory to be free from material and manufacturing defects and apply from date of purchase from dealer.

The Tri-Mate control box is warranted for a period of three (3) years from date of purchase.

The scaler and electrosurgery handpiece is warranted for a period of two (2) years from date of purchase. The Micromotor is warranted for a period of one (1) year from date of purchase.

The polisher straight handpiece is warranted for a period of one year from date of purchase.

The stack (transducer) is warranted for a period 180 days with the purchase of a new scaler. 30 days with purchase of a replacement stack only.

Ultrasonic tips are guaranteed at time of purchase to be free of manufacturing and material defects. Prophy angle is warranted for a period of thirty (30) days from date of purchase.

All warranties are void if the items have been damaged due to negligence, improper use, failure to lubricate, missing or damaged parts, or opening the control unit.

Engler Engineering Corporation agrees to repair or replace, pending review, any equipment or item found to be defective. Our warranty also covers part / equipment failure under normal and proper use during the warranty period described above. Repair or replacement will be determined providing the equipment was properly used and properly cared for as per the Engler owners manual. The warranty does not cover negligence or lack of maintenance. Repair or replacement is the decision of Engler Engineering Corp. and all decisions are final. Engler Engineering Corp. shall not be held responsible for any damages as the result of improper installation, plumbing, electrical etc.. All equipment and accessories should be used by and under the supervision of a trained doctor, veterinarian, dentist or hygienist.

# All items returned to Engler Engineering for evaluation must be shipped pre-paid. All shipping to and from Engler Engineering is the responsibility of the customer.

#### PLEASE NOTE:

Whenever returning any products for evaluation and / or repair, we strongly suggest you send in the complete unit with all attachments so that a correct evaluation can be made.

Engler Engineering Corp, has been in business since 1964, in Hialeah, Florida, building and maintaining dental units and parts for our ultrasonic scalers, polishers, and anesthesia machines as well as manufacturing inserts and other items for many devices on the market today. As a leader in the field, we would appreciate a minute of your time to let us know how we can better serve you.

You can mail all comments, suggestions and questions to us at the following address and number:

### Engler Engineering Corp. 1099 East 47 Street Hialeah, FL 33013 If you wish to fax to us, please use 305-685-7671.

### **RETURN FOR EVALUATION / REPAIR FORM**

Contact Person:		Ext:	
Clinic Phone Number		Number: Fax:	
Clinic Name:			
Shipping Address:			
City:	State:		Zip:
Item(s) being sent:			
Please describe what is happening or	why you are sendi	ng in this unit:	

When returning items to us, we would prefer you send the complete unit so that a proper evaluation can be made.

It is suggested that you ship all returns to us by Federal Express or UPS. If using US Mail, it is suggested that you track and insure the package.

Address all returns as follows:

# ENGLER ENGINEERING CORP. REPAIR DEPARTMENT 1099 EAST 47 STREET HIALEAH, FL 33013 (305) 688-8581

If you have any questions or concerns, please call us. ENGLER ENGINEERING CORP 800-445-8581.

19-01-04 Rev. A



Web: www.englerusa.com / Email: info@englerusa.com 1099 East 47 Street – Hialeah, Florida 33013 USA Tel: (800) 445-8581 / (305) 688-8581 Fax: (305) 681-3831

### TRI-MATE LOANER REQUEST FORM

Your Name:\_\_\_\_\_

\_\_\_\_\_ Your fax #:\_\_\_\_\_

Please review and complete this form and FAX it back to us at 305-681-3831 so we can ship a unit out to you.

CONDITIONS of the Engler Engineering Corporation loaner program:

- 1. We must receive this completed and signed form before a loaner is shipped out.
- 2. A Credit Card is required the information must be shown on the form below.
- 3. It is understood that if Engler Engineering does not receive your unit for repair within five (5) business days of you receiving the loaner, your credit card will automatically be charged \$50.00 per week for rental of the loaner.
- 4. You have five (5) business days after we send your estimate of repairs to send us your reply; otherwise a weekly rental charge of \$50.00 will be applied to your credit card.
- 5. Our loaner must be shipped back to us by Federal Express or UPS (NOT GROUND), to be received within five (5) days of the date you receive your unit. You need to insure it and keep record of the tracking number for reference if needed. If the loaner is not received, Engler Engineering will automatically charge your card for the full value of the loaner.
- 6. You are responsible for all shipping charges to and from Engler Engineering.
- All parts are double checked at shipping to verify that they are included with the loaner. It is your
  responsibility to notify Engler Engineering at 800-445-8581 on the day the loaner is received if any items
  are missing.
- 8. All loaner items must be returned in good working condition. We include a copy of our check list for you to use to verify all parts are being returned. Missing and/or damaged items will be charged to your credit card.

NOTE: Loaner requests received after 11:30 AM Eastern time will be shipped out the next day. Unless specified, all loaners will be shipped Federal Express - Express Saver with a 3 to 4 business day delivery time. Mark box with X if Next Day or Second Day service is requested. (additional charges apply)

Please fill in the information below authorizing the transaction to accommodate your request.

Clinic Name:			_Phone	
Contact Name:		E-mail: _		
Address:				
City:			State:	Zip
The serial number(s) of the device being sent in is				
Credit card number (Amex) (Visa) (MC)				
Expiration:	Code:	Zip (	Code of billing addres	s:
I understand and agree to the terms and conditions stated above. Date:				